Preliminary Comments from Dr. Armistead (Ted) Russell on

EPA's Integrated Science Assessment for Ozone and Related Photochemical Oxidants

(Second External Review Draft – September 2011)

While improved, there are a number of issues, some lingering from before.

Chapter 3:

1. From before: Please provide more quantitative relationships between the various metrics (e.g., 1-hr max, 8-hr max and 24 hr avg). This is important to better interpreting the health results. I would like to see quantitative relationships between the metrics on a city-by-city basis, if possible, showing the range of relationships (i.e., slopes, intercepts).
2. From before: Please provide an objective approach to deal with uncertainty and bias in the model (or whatever approach you recommend for use) estimates of background. This is a science issue.
3. New: Given the variety of new studies of how to estimate "background" ozone, a more thorough assessment of the methods (particularly those using finer scale modeling) should be given. What is the recommended choice and why?
4. The figures and other analyses should focus on the likely form of the standard, e.g., 4^{th} highest 8-hr average (or the three year average of 4^{th} highest), not showing other metrics except to make a point (which is really not done currently).
5. Provide more information on temporal trends, but not just of the higher end of the distributions. I would like to see the mean, and some information on the distribution, over the last 20 years, possibly showing the frequency distribution of concentrations for a specified, consistent, set of sites.
    a. Along those lines, it would be good to also provide more information on what is happening in the 60-70 ppb region over time given that this is the likely range of a suggested revision to the standard.
6. Fig. 3-58b looks wrong (the area under the red curve looks smaller).
7. Section 3.9 is weak. Further, this section suggests a number of issues are important: What does important really mean in this context? (The word "important" is used elsewhere, but it is hard to interpret how important it is given how often the word is used.)
8. It would be good to look at how the information from this chapter will be used in the REA and PA and then make scientific recommendations on the inputs to those approaches. In particular, the rollback model will require a number of coefficients that are informed by the analysis of the temporal trends (and how the distributions are responding to controls) and the estimated "background". Further, BenMAP and APEX will use some sort of modeling results (or a fusion of data and various models). The ISA should provide specific recommendations as to the inputs

to that modeling. In essence, work the process backwards starting with what type of analyses are needed for the PA and REA, and then provide recommendations and information needed to best support those analyses.

Chapter 10

9. The increased brevity is appreciated, though there are still sections that seem to ramble without getting to the point (particularly 10.4.5).
10. In regards to the UV-B related effects, the health effects are suggested to be "small". What is "small"? Be quantitative as much as possible. This part of the ISA actually sounds to be evasive (maybe that is tied to being rambling).
11. The conclusion is made that the effects" cannot yet be critically assessed within reasonable uncertainty." What part(s) of the process are most uncertain, and which uncertainties are the critical roadblocks.
12. On page 10-28, it is stated that "Reduction of tropospheric ozone concentrations could therefore provide an important means to slow climate change…" However, the Executive Summary and Chapter 2 conclude that the relationship is "likely causal." The statement in this chapter sounds more like "causal".

Executive Summary / Chapter 2

13. The Executive Summary and Chapter 2 both are much more specific than Chapters 9 and 10 about relationships between ozone and outcomes, paralleling the health effects chapters. For example, the Exec. Summary and Chapter 2 have bolded sentences with conclusions about the level of relationship (e.g., "causal", likely to be causal"…). Such statements should be made in the chapters, with the evidence used to make that determination. As part of this, explain how changing radiative forcing does not impact climate change.